REMARKS

Claims 1-24 are pending in this application, claims 1, 9 and 17 being the independent claims.

Claims 1-24 stand rejected under 35 U.S.C. 102(e) as being anticipated by Harasawa, U.S. Patent No. 6,807,370. This rejection is hereby traversed for at least the following reasons.

As discussed in Applicants' specification, the present invention relates to an OTDR arrangement in which faults arising in a multi-span, optically amplified transmission system are examined by an OTDR probe signal, the data from which is acquired and processed on a span-by-span basis at each repeater site. The data is then returned for analysis over the opposite-going optical fiber on any desired channel to the OTDR unit located in the terminal from which the probe signal was launched. That is, the reflected and backscattered OTDR signal is converted to a digital signal that is transmitted along the opposite-going fiber just as any other data is transmitted. In contrast, in a conventional OTDR arrangement, the reflected and backscattered OTDR signal itself is returned to the OTDR unit located in the terminal, at which point acquisition, processing and analysis become more difficult because the OTDR signal has been even further attenuated.

The aforementioned feature of the present invention is reflected in claim 1 by reciting the steps of: *transforming the returned OTDR signal to a digitized electrical signal; transforming the digitized electrical signal to an optical data signal; and transmitting the optical data signal over the second optical transmission path to the first terminal for extracting the status information embodied therein.*

As detailed below, in Harasawa the reflected and backscattered OTDR signal itself is returned to the OTDR unit located in the terminal. That is, from the perspective of the present invention, Harasawa represents a conventional OTDR arrangement.

Beginning at column 10, line 57, Harasawa summarizes the functionality of the invention disclosed therein as follows:

> In the optical transmission system 1 of the present invention, each repeater 10 provides a monitoring report signal to inform the end station 20 of its current operating status. Based on the monitoring report signals, the end station 20 identifies a faulty link section if a problem is

> found in the optical transmission line. The end station 20 then sends a troubleshooting control command to the relevant repeater, and in response to this command, the repeater 10 transmits a probing light pulse signal and a complementary light pulse signal in order to locate a fault on the transmission line. *Some of the probing light pulse signal would be reflected back toward the end station as a result of Rayleigh scattering. Using the complementary light pulse signal sent from the repeater 10 for synchronization, the end station 20 captures and analyzes the Rayleigh backscatter, thereby locating the fault of the optical transmission line.* [Italics added].

To elaborate on this summary, the repeater 10 in Harasawa has two operation modes: a monitoring mode and a failure detection mode (see column 4, line 64-65). In monitoring mode, the repeater receives a monitoring control command from the end station 20 and generates a monitoring report signal (column 5, lines 14-25). The monitoring report signal indicates the operating status of the repeater itself (column 3, lines 51-60). Since Rayleigh backscattered light is not employed in the monitoring mode, this mode of operation does not need to be discussed further. Rather, Rayleigh backscattered light is employed in the failure detection mode to locate a fault on the transmission line.

In response to a trouble-shooting command received from the end station 20, the monitoring controller 101 in repeater 10a (see FIG. 2) causes the laser diodes 103a and 103b to generate the probing light pulse signal (see column 5, line 50 – column 6, line 7). That is, upon a request from the end station, the repeaters themselves generate what the present invention refers to as the OTDR probe signal. The portion of the probing light pulse signal that is backscattered travels over the fiber optic cables C2, C3, ... , Cn, finally reaching the remote end station 20-2, where the incoming Rayleigh scattered light is analyzed (see column 6, lines 8-24). Accordingly, Harasawa clearly forwards to the end station the backscattered signal itself. In contrast, instead of forwarding the backscattered signal, the claimed invention forwards to the end station or terminal an optical data signal in which the status information has been digitally embodied.

Since Harasawa does not show or suggest this claimed feature of the invention, it is respectfully requested that for at least this reason the rejection of independent claim 1 and the claims that depend therefrom under 35 U.S.C. 102(e) be reconsidered and

withdrawn. Independent claims 9 and 17 are believed to be allowable for at least those reasons presented above in connection with claim 1. Accordingly, it is also respectfully requested that the rejection of claims 9 and 17 and the claims that depend therefrom under 35 U.S.C. 102(e) also be reconsidered and withdrawn.

Conclusion

In view of the foregoing, it is believed that the application is now in condition for allowance and early passage of this case to issue is respectfully requested. If the Examiner believes there are still unresolved issues, a telephone call to the undersigned would be welcomed.

Fees

If there are any fees due and owing in respect to this amendment, the Examiner is authorized to charge such fees to deposit account number 50-1047.

Respectfully submitted,

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